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EXAMINER

WEST, JEFFREY R

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-6, 11, 23-27, 32, 43-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over National Instruments, "Computer-Based Instruments: NI 5911 User Manual Digital Oscilloscope for PCI" (hereafter "NI 5911") in view of National Instruments, "NI-SCOPE Instrument Driver Quick Reference Guide: Easy Programming for National Instruments Oscilloscopes" (hereafter "Reference Guide").

NI 5911 discloses a digital oscilloscope (page 1-1) that is graphically programmed according to the "NI-SCOPE Instrument Driver Quick Reference Guide: Easy Programming for National Instruments Oscilloscopes" (page 1-3) by accepting input parameters (page 1-4) and processing an inputted waveform accordingly to provide a corresponding display (pages 1-5 and 2-9 – 2-11), but does not describe the corresponding graphical programming.

With respect to claim 43, Reference Guide teaches receiving one or more input parameters (i.e. user-specified thresholds, scalar measurements, statistics, constants, etc.) (pages 3, 7, and 8, niScope_ConfigureEdgeTrigger, niScope_ReadWaveformMeasurement, niScope_FetchWaveformMeasurementStats, niScope_FetchMultiWaveformMeasurement) ; defining a plurality of processing elements based upon said received one or more input parameters (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS), each of said plurality of processing elements adapted to receive waveform data and to process the received waveform data in accordance with said corresponding input parameters (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS); and graphically connecting said plurality of processing elements to define a processing web (Figure, page 8); wherein at least one of said plurality of processing elements requests processing from an upstream one of said plurality of processing elements so that upon said request, the upstream processing element performs said request processing to process a received waveform data, and provide the processed

waveform data to the at least one requesting processing element (i.e. when FETCHSTATS is executed it requires measurement data to be processed and thereby requests READMEAS to process a waveform in order to provide FETCHSTATS with the required measurement data as a result of the fetch) (page 7, READMEAS and FETCHSTATS).

With respect to claim 45, Reference Guide teaches a plurality of processing elements that are defined based upon one or more received input parameters (i.e. user-specified thresholds, scalar measurements, statistics, constants, etc.) (pages 3, 7, and 8, niScope_ConfigureEdgeTrigger, niScope_ReadWaveformMeasurement, niScope_FetchWaveformMeasurementStats, niScope_FetchMultiWaveformMeasurement), each of said plurality of processing elements performing a discrete processing function (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS), each of said plurality of processing elements adapted to receive waveform data and to process the received waveform data in accordance with said corresponding input parameters (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS); and a plurality of connections indicated graphically between said plurality of processing elements to define a flow of information therebetween (Figure, page 8); wherein at least one of said plurality of processing elements requests processing from an upstream one of said plurality of processing elements so that upon said request, the upstream processing element performs said requested processing to process a received waveform data, and provide the processed waveform data as a result from the

processing to the at least one of the plurality of processing elements requesting the processing (i.e. when FETCHSTATS is executed it requires measurement data to be processed and thereby requests READMEAS to process a waveform in order to provide FETCHSTATS with the required measurement data as a result of the fetch) (page 7, READMEAS and FETCHSTATS).

With respect to claim 47, Reference Guide teaches a plurality of processing elements that are defined based upon one or more received input parameters (i.e. user-specified thresholds, scalar measurements, statistics, constants, etc.) (pages 3, 7, and 8, niScope_ConfigureEdgeTrigger, niScope_ReadWaveformMeasurement, niScope_FetchWaveformMeasurementStats, niScope_FetchMultiWaveformMeasurement), each of said plurality of processing elements performing a discrete processing function (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS), each of said plurality of processing elements adapted to receive waveform data and to process the received waveform data in accordance with said received input parameters (pages 3, 7, and 8, configEdge, READMEAS, FETCHSTATS, FETCHMEAS); and a plurality of connections indicated graphically between said plurality of processing elements to define a flow of information therebetween (Figure, page 8); wherein at least one of said plurality of processing elements requests processing from an upstream one of said plurality of processing elements so that upon said request, the upstream processing element performs said requested processing to process a received waveform data, and provide the processed waveform data as a result from the

processing to the one of the plurality of processing elements requesting the processing (i.e. when FETCHSTATS is executed it requires measurement data to be processed and thereby requests READMEAS to process a waveform in order to provide FETCHSTATS with the required measurement data as a result of the fetch) (page 7, READMEAS and FETCHSTATS).

With respect to claims 2 and 23, Reference Guide teaches wherein at least two of said plurality of processing elements are updated at different speeds (i.e. READMEAS is updated based on the acquisition speed (maxTime) and FETCHSTATS is updated based on a result of the READMEAS and is therefore inherently slower).

With respect to claims 3 and 24, Reference Guide inherently teaches that a processing object of the oscilloscope desiring the calculation of the measurements controls the update of said at least two of said plurality of processing elements (pages 3-5, 7, and 9, configEDGE, READMINMAX, FETCHMINMAX, READMEAS, FETCHSTATS, FETCHMEAS).

With respect to claims 5 and 26, Reference Guide teaches wherein said at least two of said plurality of processing elements are idle when not updated (i.e. only executed to perform processing when new data provided) (pages 3-5, 7, and 9, configEDGE, READMINMAX, FETCHMINMAX, READMEAS, FETCHSTATS, FETCHMEAS).

With respect to claims 6 and 27, Reference Guide teaches wherein one of said at least two of said plurality of processing elements is of a cumulative type running at a

first speed, and another of said at least two of said plurality of processing elements is of a non-cumulative type running at a second speed, and wherein the first speed is higher than the second speed (i.e. EASYACQUIRE, TIMEBASEACQUIRE, etc. cumulatively acquire data while READMINMAX, FETCHMINMAX, READMEAS, FETCHSTATS, FETCHMEAS are non-cumulative and since they depend on the acquired data, inherently run at a speed slower than the cumulative processing) (pages 1, 4, 5, 7, and 8).

With respect to claims 11, 32, and 48, Reference Guide teaches wherein one of said plurality of processing elements requests data from an upstream source when data is requested from it by a downstream processing element (i.e. when FETCHSTATS is executed it requires measurement data to be processed and thereby requests READMEAS to process a waveform in order to provide FETCHSTATS with the required measurement data as a result of the fetch -page 7, READMEAS and FETCHSTATS- and repetitively performs acquiring processing based on a request to fetch more data -Figure, page 8).

With respect to claims 44, 46, and 49, Reference Guide teaches wherein the upstream one of said processing elements transmits the processed waveform data to the at least one of the plurality of processing elements requesting processed waveform data therefrom without an intervening buffer (Figure, page 8).

It would have been obvious to one having ordinary skill in the art to modify the invention of NI 5911 to include the corresponding graphical programming, as taught by Reference Guide, because Reference Guide suggests the corresponding

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programming required to carry out the programming in NI 5911 in a manner that would have reduced the burden of the user by employing an easily discernable graphical interface.

With respect to claims 4 and 25, NI 5911 teaches processing elements to display a processed waveform and Reference Guide teaches processing elements that operates at an acquisition speed. Further, since Reference Guide teaches that the data to be displayed, such as statistical data, is updated based on a result of periodically processed measured data, it is inherent that any resulting display speed must be slower than the acquisition speed.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over NI 5911 in view of Reference Guide and further in view of U.S. Patent No. 5,736,971 to Shirai.

As noted above, the invention of NI 5911 and Reference Guide teaches many of the features of the claimed invention, and while the invention of NI 5911 and Reference Guide does disclose updating processing elements based upon a request with at least one processing element receiving at least one input and producing at least zero outputs, the combination does not explicitly describe the use of pins.

Shirai teaches a method and apparatus for increasing resolution of a computer graphics display including a display controller for connection to a CRT (column 5, lines 12-15) that receives data inputs through at least one input pin (i.e. pin connector CN1) (column 5, lines 34-45), produces outputs through at least one

output pin (i.e. pin connectors CN2-CN4) (column 5, lines 4-6), and receives controlling instructions through a processor at a pin (i.e. pin connector CN1) (column 4, lines 43-49).

It would have been obvious to one having ordinary skill in the art to modify the invention of NI 5911 and Reference Guide to include specifying that the processing element uses pins, as taught by Shirai, because the invention of NI 5911 and Reference Guide does teach the application of the processing device that receives input data and outputs data but does not give the specifics as to how the data is received (i.e. through pins), and Shirai suggests a corresponding well-known structure applicable to carry out the invention of NI 5911 and Reference Guide that further allows synchronizing adjustments to improve processing (column 2, lines 45-50).

Response to Arguments

5. Applicant's arguments with respect to claims 2-6, 11, 13, 23-27, 32, and 43-49 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

U.S. Patent No. 4,809,189 to Batson discloses a method for configuring and performing processing in a digital oscilloscope processing apparatus (column 2,

lines 13-14), comprising the steps of receiving one or more input parameters (column 4, line 56 to column 5, line 8 and column 19, lines 16-33), defining a plurality of processing elements based upon said received one or more input parameters (column 18, line 53 to column 19, line 33, column 19, lines 38-68 and column 20, lines 43-48) and connecting said plurality of processing elements to define a processing web (column 4, lines 14-56 and Figure 1), wherein at least one of said plurality of processing elements requests processing from an upstream one of said plurality of processing elements so that upon said request, the upstream processing element performs said requested processing to provide required data to the at least one processing element (i.e. the display controller requests the memory management unit "14" to process memory access communications to control access to memory banks in the waveform memory "16" and returns the required data, as part of a read access communication, from waveform memory back to the display controller) (column 5, lines 9-29 and 51-65 and Figure 1).

U.S. Patent No. 5,301,336 to Kodosky teaches a method for configuring and performing processing in an instrument comprising the steps of receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), receiving one or more input parameters by the instrument (column 32, lines 47-50), defining a set of instructions input by a user to be associated with one or more processing elements of the instrument, based upon said one or more input parameters (column 9, lines 58-64 and column 32, line 48 to column 33, line 16), to enable said processing elements to carry out said instructions

and perform processing on the received input signals within the instrument upon application of the associated processing element (column 33, line 66 to column 34, line 13), assigning a graphical representative for each said processing element (column 32, lines 5-7 and column 33, lines 19-25), coupling one or more of the received input signals to one or more processing element graphical representatives (column 31, lines 13-18 and column 34, lines 2-13), and connecting respective ones of said processing element graphical representatives to define and graphically depict a processing web for performing corresponding processing on said one or more received input signals within said instrument (column 34, lines 1-16 and Figure 74).

U.S. Patent No. 6,570, 592 to Sajdak et al. teaches a system and method for specifying trigger condition of a signal measurement system using graphical elements on a graphical user interface.

U.S. Patent No. 5,953,009 to Alexander teaches a graphical system and method for invoking measurements in a signal measurement system.

U.S. Patent No. 5,920,479 to Sojoodi et al. discloses a method for configuring and performing processing in a digital oscilloscope (column 1, lines 60-67) comprising the steps of receiving one or more input signals by the digital oscilloscope (column 3, lines 10-21 and column 13, lines 51-67), receiving one or more input parameters by the digital oscilloscope (column 19, lines 48-59), selecting a set of instructions by a user (column 15, lines 11-15, column 17, lines 30-54, and column 25, lines 46-56) to be associated with one or more processing elements of the digital oscilloscope, based upon said one or more input parameters, to enable

said processing elements to carry out said instructions and perform processing on the received input signals within the digital oscilloscope upon application of the associated processing element (column 10, lines 59-64), assigning a graphical representative for each said processing element (column 13, lines 51-67), coupling one or more of the received input signals to one or more processing element graphical representatives (column 13, lines 51-67), and connecting respective ones of said processing element graphical representatives to define and graphically depict a processing web for performing corresponding processing on said one or more received input signals within said digital oscilloscope (column 17, line 55 to column 18, line 32).

U.S. Patent No. 5,668,469 to Natori et al. teaches a digital oscilloscope using a color plane display device and data display method comprising a plurality of processing elements, including acquisition devices and display devices, (Figure 1), wherein the data read out of a display memory using a display controller is in synchronization with the other processing elements (abstract and column 4, line 42 to column 5, line 14).

U.S. Patent No. 4,072,851 to Rose teaches a waveform measuring instrument with resident programmed processor for controlled waveform display and waveform data reduction and calculation.

U.S. Patent No. 6,121,799 to Moser teaches an interleaved digital peak detector.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

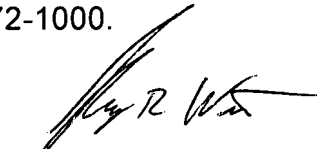
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeffrey R. West
Primary Examiner
Art Unit – 2857

September 4, 2007